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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,138	04/10/2001	Mark S. Percy	062986.0160	8509

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EXAMINER

NGUYEN, KIMBINH T

ART UNIT PAPER NUMBER

2671

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/832,138

Applicant(s)

PEERCY ET AL.

Examiner

Kimbinh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/17/04 has been entered.
2. This action is responsive to amendment filed 6/17/04.
3. Claims 1-20 are pending in the application.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4-6, 8, 9, 12-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider et al. (5,777,621) in view of Baldwin (5,798,770).

Claims 1 and 14, Schneider et al. discloses providing a higher-level appearance description of geometry in a retained-mode representation (col. 2, lines 27-30); wherein the higher level appearance description (a model is represented in Escher as a hierarchy of objects which describe a geometry (shape), a material attribute (describing

the appearance of a surface; col. 8, lines 21-29) is created using a first appearance description (a quality group object is created by the Escher system according to a predefined data structure, col. 8, lines 2-7); selecting a representational level for a parameter or object in the higher-level appearance description (collection of quality control data groups, each of which contains a plurality of options; col. 5, line 63 through col. 6, line 6; col. 69, line 59 through col. 70, line 3); traversing the retained-mode representation (a model hierarchy is traversed from top to bottom, left to right, col. 18, lines 25-37) according to the selected representational level to provide a final representation (col. 9, lines 44-58; col. 14, lines 61-67); Schneider does not teach rendering the final representation by a graphics pipeline; however, Baldwin teaches that can be rendered by a graphics pipeline (abstract; col. 4, lines 51-54); performing the graphics system interface under the OPENGL®; wherein the OPENGL® graphics system interface is a graphics system interface capable of operating with graphic pipeline (abstract; col. 4, lines 51-54; col. 60, lines 2-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a graphics pipeline, OPENGL® taught by Baldwin's method into the graphics rendering system of Schneider for utilizing graphics pipeline which can be compatible with OPENGL® to perform rendering, because it would provide an optimized throughput by only performing processor-intensive operations on pixels which will actually be displayed (col. 4, lines 54-56).

Claims 2, 4-6, 9, 12, 16, 19 and 20, Schneider et al. discloses the retained-mode representation is a scene graph (col. 2, lines 8-12, lines 27-32; col. 4, lines 11-12);

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drawing the scene from the final representation (col. 5, lines 14-16); automatically selecting appearance detail (collecting in one place a number of quality control criteria such as line style, type of shaders, type of illumination, level of detail, antialiasing level, and so on, col. 8, lines 4-7) from the retained-mode representation (col. 8, lines 46-51); defining a parametric surface from the higher-level appearance and retaining geometry parameters for parametric surface (immediate mode takes data structures such as a polygon data structure as parameters, whereas retained-mode takes objects such as an EtGeometryObject as parameters (col. 28, lines 64-67); determining quality type parameters: compute reflections, compute shadows for rendering surface) (table II; col. 42, lines 9-24; col. 46, line 57 through col. 47, line 21; fig. 16).

Claims 8 and 15, the rationale provide in the rejection of claim 1 is incorporated here in. In addition, Schneider teaches a graphics processor (fig. 1, # 110), a storage medium (col. 71, line 35).

Claims 13, 17, Schneider et al. discloses the higher-level appearance is operable to select geometry parameters to a level of detail (by creating a quality collection objects to maintain each effected quality collection in sorted order and to handle duplicate quality indices in the same quality collection, col. 44, lines 45-55) that minimizes hardware source consumption (col. 2, lines 17-30).

6. Claims 3, 7, 10, 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider et al. (5,777,621) in view of Baldwin (5,798,770) and further in view of Peercy et al. "Interactive Multi-Pass Programmable Shading" (ACM 2000).

Claims 3, 7, 10, 11, 18, Schneider does not teach traversing the another retained-mode; however, Peercy et al. discloses traversing the retained-mode to provide another retained-mode (another Cosmo3D scene graph) and traversing the another retained-mode to provide the final representation of the scene (a draw action applied to this second scene graph renders the final image) (section 2.4, page 428); the final representation (a final color or a final solution in multiple passes) based on the group consisting of performance characteristics of the graphics pipeline; the higher-level appearance consisting of a programmable shading; a reflective map; a bump map (see Abstract, Introduction and 1.1 Related work, pages 425-426). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the Peercy's teaching into the Schneider's method for utilizing the graphics pipeline to produce final image, because utilizing the OPENGGL rendering pipeline, it would support programmable shading in interactive visual computing into multiple passes through graphics hardware (Introduction, page 425).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kimbinh Nguyen** whose telephone number is **(703) 305-9683**. The examiner can normally be reached **(Monday- Thursday from 7:00 AM to 4:30 PM and alternate Fridays from 7:00 AM to 3:30 PM)**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

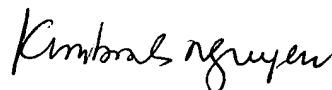
(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Part II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 8, 2004



Kimbinh Nguyen

Patent Examiner AU 2671